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The Unsustainable U.S. Current Account Position Revisited

Maurice Obstfeld and Kenneth Rogoff

Five years ago, we published a paper (Obstfeld and Rogoff 2000a) arguing that the U.S. current account deficit—then running at 4.4 percent of gross domestic product (GDP)—was on an unsustainable trajectory over the medium term and that its inevitable reversal would precipitate a change in the real exchange rate of 12 to 14 percent if the rebalancing were gradual, but with significant potential overshooting if the change were precipitous. Though the idea that global imbalances might spark a sharp decline in the dollar was greeted with considerable skepticism at the time, the view has since become quite conventional. Indeed, when Federal Reserve Chairman Alan Greenspan gave a speech in November 2003 arguing that the U.S. current account would most likely resolve itself in quite a benign manner, his once conventional view was greeted as contrarian.[1]

In addition to updating the earlier calculations, this paper extends our previous analytical framework in some important dimensions, including

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1. See Greenspan (2004).

taking into account general equilibrium considerations resulting from the United States's large size in the global economy. We also generalize our model to incorporate terms of trade changes (changes in the relative price of exports and imports) in addition to changes in the relative price of traded and nontraded goods. These analytical changes point to a substantially steeper dollar decline. (In another paper, Obstfeld and Rogoff [2005], we extend the present analysis in a number of dimensions, including, especially, analyzing alternative scenarios for how the requisite real decline in the dollar might be distributed across Asian and non-Asian currencies.)

Under most reasonable scenarios, the rise in relative U.S. saving required to close up the current account deficit implies a negative demand shock for U.S.-produced nontraded goods. The same forces, however, imply a positive demand shock for foreign nontraded goods, and this general equilibrium effect turns out to imply an even larger depreciation in the real dollar exchange rate—as much as double that in our earlier partial equilibrium calculation. Overall, taking into consideration current data as well as our improved analytical framework, we conclude that U.S. current account adjustment entails a larger potential decline in the dollar than we had earlier speculated. Moreover, we now believe that some of the potential rebalancing shocks are considerably more adverse than one might have imagined in 2000 (in view of the increased long-term security costs that the United States now faces as well as its open-ended government budget deficits and its precariously low, housing-bubble distorted personal saving rate). Thus, our overall take is that the U.S. current account problem poses even more significant risks today than it did when we first raised the issue five years ago.[2]

The general equilibrium perspective of this paper also offers helpful insights into what sorts of traumas the United States and foreign economies might experience, depending on the nature of the shocks that lead to global current account rebalancing. For example, a common perception is that a global rebalancing in demand risks setting off a dollar depreciation that might be catastrophic for Europe and Japan. Fundamentally, this view is correct in that Europe's product and labor markets and Japan's credit markets are much less flexible than those in the United States, and hence these regions have more difficulty adjusting to any kind of shock, exchange rate or otherwise. However, as the model makes clear, a global rebalancing of demand would also yield some benefits. It is true that a dollar depreciation will likely shift demand toward U.S. exports and away from exports in the rest of the world, although this effect is mitigated by the well-documented home bias in consumers' preferences over tradables. However, ceteris paribus, global rebalancing of demand will give a large boost to foreign nontraded goods industries relative to United States nontraded goods in-

2. For another early examination of U.S. external deficit sustainability, see Mann (1999).

dustries, and this has to be taken into account in assessing the overall impact of the dollar depreciation. Another widespread belief in the policy literature is that a pickup in foreign productivity growth rates, relative to U.S. rates, should lead to a closing of global imbalances. Our analytical framework shows that would only be the case if the relative productivity jump were in nontradable goods production, rather than tradable goods production where generalized productivity gains often first show up. Therefore, contrary to conventional wisdom, as global productivity rebalances toward Europe and Japan, the U.S. current account deficit could actually become larger rather than smaller, at least initially.

In the first section of the paper we review some basic statistics on the size and current trajectory of the U.S. current account deficit, the country's net international investment position, and the dollar's real exchange rate. Compared to similar charts and tables in our 2000a paper, we find that the U.S. current account position has worsened somewhat, whereas the broadly trade-weighted dollar has moved by a comparatively small amount (appreciating until February 2002, depreciating to somewhat below its 2000 level since). The path of U.S. net international indebtedness has been somewhat different from that of cumulated measured current accounts, due largely to the rate-of-return effect highlighted by Gourinchas and Rey (2005): that U.S. current account deficits historically predict high future dollar returns on U.S. foreign assets compared to U.S. foreign liabilities.[3] As Tille (2003, 2005) and others have observed, the composition of U.S. foreign assets and liabilities—with U.S. assets only partly linked to the dollar and liabilities almost entirely dollar-denominated—implies that a depreciation of the dollar helps strengthen the U.S. net foreign asset position.[4] In the United States, the bond-market rally associated with the onset of recession in 2001 worked to increase net foreign debt, an effect that will play out in reverse as long-term dollar interest rates rise relative to foreign rates. While these considerations are important for determining the timing of the U.S. current account's ultimate reversal, our results here (and the more detailed analysis in Obstfeld and Rogoff 2005) suggest that they are of secondary importance in determining the ultimate requisite fall in the dollar whenever global current accounts finally close up. This turns out to be the case regardless of whether the driving force is shifts in savings (say, due to a flattening or collapse in U.S. housing prices) or in productivity trends (due to a catch-up by the rest of the world in retailing productivity). The reason is that the main impact on the dollar comes from a global rebalancing

3. In general, the rate of return on U.S. foreign assets has exceeded that on U.S. foreign liabilities; see Lane and Milesi-Ferretti (2004), Obstfeld and Rogoff (2005), and the chapters by Gourinchas and Rey and by Lane and Milesi-Ferretti in this volume. On the valuation of net foreign assets, see also IMF (2005b).

4. Lane and Milesi-Ferretti (2001) have attempted to adjust for such asset-price changes in constructing their series of countries' foreign assets and liabilities.

of trade, rather than any change in the transfer necessitated by interest payments on global debt positions.

A few further points merit mention, both by way of introduction to the present analysis and clarification of our earlier (2000a) paper. First, our framework should not be thought of as asking the question: "How much depreciation of the dollar is needed to rebalance the current account?" Though pervasive in the press and the mostly model-free policy literature, this view is largely misguided. In fact, most empirical and theoretical models (including ours) suggest that even very large (say, 20 percent) autonomous change in the real trade-weighted dollar exchange rate will only go a fraction of the way (say, 1/3) towards closing the better than 6 percent U.S. current account deficit. The lion's share of the adjustment has to come from saving and productivity shocks that help equilibrate global net saving levels and that imply dollar change largely as a by-product (though our model, of course, implies simultaneous determination of exchange rates and current accounts). In particular, although we allow the terms of international trade to respond to current account adjustment, the relative price of imports and exports is only one element underlying the overall real exchange rate response and not the dominant element from a quantitative viewpoint.

Second, it is important to note that our model assumes that labor and capital cannot move freely across sectors in the short run. To the extent factors are mobile, domestically as well as internationally, and to the extent that the closing of the current account gap plays out slowly over time (allowing factors of production more time to relocate), the real exchange rate effects of global rebalancing will be smaller than we calculate here. A related issue that we leave aside is the possibility of change in the range of goods produced and exported by the United States. Although that effect realistically is absent in the short run, over the longer run it might soften the terms of trade effects of various economic disturbances.

Third, the sanguine view that capital markets are deep and the U.S. current account can easily close up without great pain ignores the adjustment mechanism highlighted here, which depends more on goods-market than capital-market integration. The U.S. current account may amount to only 6 percent of *total* U.S. production, but it is likely 20 percent or more of U.S. *traded* goods production (at least according to the calibration suggested by Obstfeld and Rogoff 2000b). Our view is consistent with the empirical findings of Edwards (2004). His survey of current account reversals in emerging markets finds an economy's level of trade to be the major factor in determining the size of the requisite exchange rate adjustment, with larger traded-goods sectors implying a smaller currency adjustment on average. Calvo, Izquierdo, and Talvi (2003), who adopt a framework nearly identical to that of Obstfeld and Rogoff (2000a), arrive at a similar conclusion. Parenthetically, we note that most studies of current account reversals (including International Monetary Fund [IMF; 2002] or Croke, Kamin, and

Leduc [2005]) focus mainly on experiences in relatively small open economies. But as our model shows, the fact the United States is a large economy considerably levers up the potential exchange rate effects. Indeed, as Edwards (2005) shows, the recent trajectory of U.S. deficits is quite extraordinary and, both in terms of duration and as a percent of GDP, far more extreme that many of the cases considered in the previously cited IMF and Federal Reserve Studies—even ignoring the United States's mammoth size.

Finally, we caution the reader that while our analysis points to a large potential move in the dollar—over 30 percent in our baseline long-term calculation, but potentially larger if the adjustment takes place quickly so that exchange rate pass-through is incomplete—it does not necessarily follow that the adjustment will be painful. As we previously noted, the end of the 1980s witnessed a 40 percent decline in the trade-weighted dollar as the Reagan-era current account deficit closed up. Yet the change was arguably relatively benign (though some would say that Japan's macroeconomic responses to the sharp appreciation of the yen in the late 1980s helped plant the seeds of the prolonged slump that began in the next decade). However, it may ultimately turn out that the early-1970s dollar collapse following the breakdown of the Bretton Woods system is a closer parallel. Then, as now, the United States was facing open-ended security costs, rising energy prices, a rise in retirement program costs, and the need to rebalance monetary policy.[5]

9.1 The Trajectory of the U.S. Current Account: Stylized Facts

Figure 9.1 shows the trajectory of the U.S. current account as a percentage of GDP since 1970. As is evident from the chart, the recent spate of large deficits exceeds even those of the Reagan era. Indeed, in recorded history, the U.S. current account never appears to have been as large as the 4.7 percent experienced in 2003, much less the 5.7 percent recorded in 2004 or the 6.1 percent projected by the IMF (September 2005) for 2005 and 2006. Even in the late nineteenth century, when the United States was still an emerging market, its deficit never exceeded 4 percent of GDP according to Obstfeld and Taylor (2004). Figure 9.2 shows the net foreign asset position of the United States, also as a percentage of GDP. The reader should recognize that this series is intended to encompass all types of assets, including stocks, bonds, bank loans, and direct foreign investment. Uncertainty about the U.S. net foreign asset position is high, however, because it is diffi-

5. Though there is no official Bretton Woods system today, some have argued (Dooley, Folkerts-Landau, and Garber 2003 and 2004 as well as those authors' chap. 3 in this volume) that the current Asian exchange rate pegs constitute a Bretton Woods II system. Perhaps, but their analysis—which emphasizes Asia's vast surplus labor pools—applies more readily to China and India than to demographically challenged, labor-starved Japan and Germany, which each account for a much larger share of global current account surpluses.

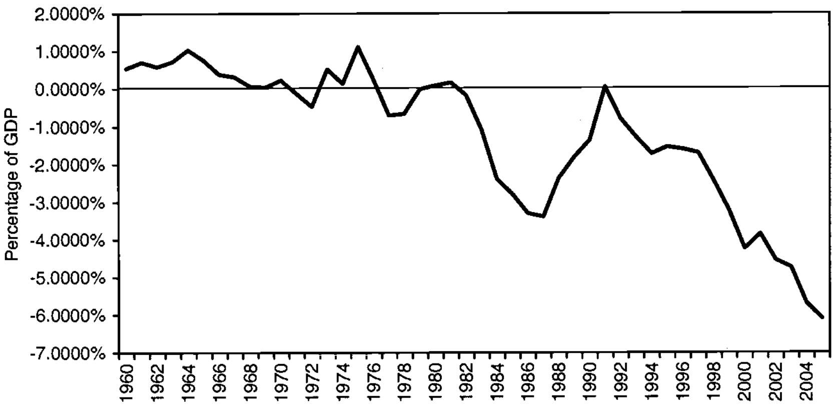

Fig. 9.1 U.S. current account balance, 1960–2005
Source: BEA; IMF *World Economic Outlook* projection for 2005.

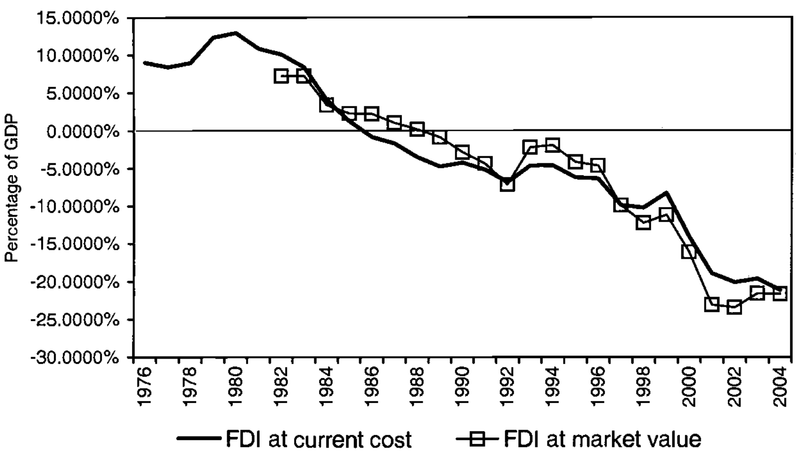

Fig. 9.2 U.S. net international investment position, 1976–2004
Source: BEA.

cult to firmly ascertain capital gains and losses on U.S. positions abroad, not to mention foreign positions in the United States. But the latest end-2004 figure of 22 percent is close to the all-time high level that the United States is estimated to have reached in 1894, when assets located in the United States accounted for a much smaller share of the global wealth portfolio. Figure 9.3, which updates a similar figure from our 2000 paper, shows the likely trajectory of the U.S. net foreign asset position, assuming external deficits of 6 percent of GDP indefinitely and continuing 6 percent nominal GDP growth. The graph also shows a few benchmarks reached by other, much smaller countries, in some cases prior to major debt problems.

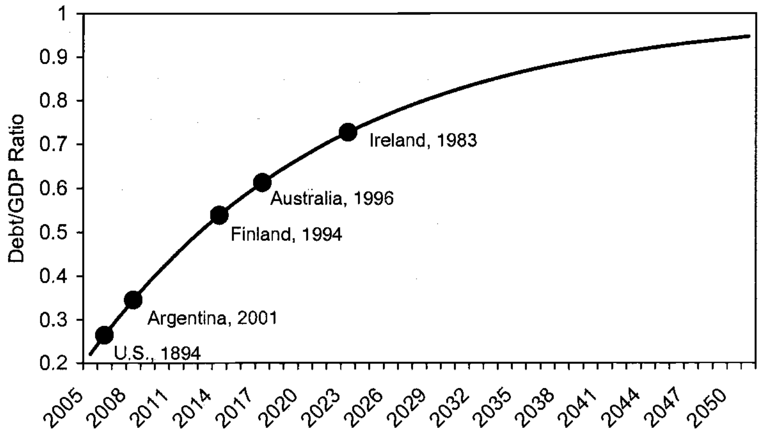

Fig. 9.3 Up the debt ladder? A hypothetical U.S. debt trajectory

Fig. 9.4 U.S. dollar real exchange rate, broad index, March 1973 = 100
Source: Board of Governors of the Federal Reserve System.

We do not anticipate the United States having a Latin-style debt crisis, of course, and the United States's unique ability to borrow almost exclusively in domestic currency means that it can choose a backdoor route to default through inflation as it has on more than one occasion in the past (including the high inflation 1970s, the revaluation of gold during the Great Depression, and the high inflation of the Civil War era). Nevertheless, these benchmarks are informative. We note that our figure does not allow for any exchange rate depreciation that—assuming foreign citizens did not receive compensation in the form of higher nominal interest payments on dollar assets—would slow down the rate of debt accumulation along the lines emphasized by Tille (2003) and by Gourinchas and Rey (2005).

Figure 9.4 shows the U.S. Federal Reserve's "broad" real dollar exchange-rate index, which measures the real value of the trade-weighted dollar against a comprehensive group of U.S. trading partners. As we asserted in the introduction, the index has fallen only modestly since we published our 2000 paper—by roughly 8 percent from November 2000 to November 2005—though it should be noted that the decline has been more substantial against the major currencies such as the euro, sterling, and the Canadian dollar. Although the nexus of current accounts and exchange rates has changed only modestly over the past four years, however, other key factors have changed dramatically.

Figure 9.5 highlights the dramatic changes witnessed in the fiscal positions of the major economies. The swing in the U.S. fiscal position has been particularly dramatic, from near balance in 2000 to a situation today where the consolidated government deficit roughly matches the size of the current account deficit. That fact is highlighted in figure 9.6, which breaks down the U.S. current account deficit trajectory into the component attributable (in an accounting sense) to the excess of private investment over private saving and the component attributable to government dissaving. One change not indicated in this diagram is the changing composition of the private net saving ratio. From the mid-1990s until the end of 1999, the U.S. current account deficit was largely a reflection of exceptionally high levels of investment. Starting in 2000, but especially by 2001, investment collapsed. Private saving also collapsed, however, so there was no net improvement in the current account prior to the recent swelling of the fiscal deficit. (The personal saving rate in the United States was only 1 percent in 2004, having fallen steadily over the past twenty years from a level that had been relatively stable at 10 percent until the mid-1980s. A major factor, of

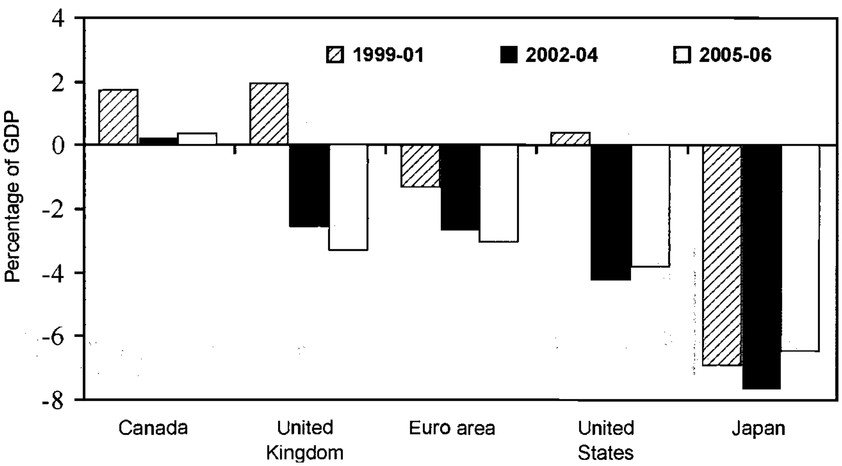

Fig. 9.5 Fiscal balances in major economies
Source: IMF *World Economic Outlook* database.

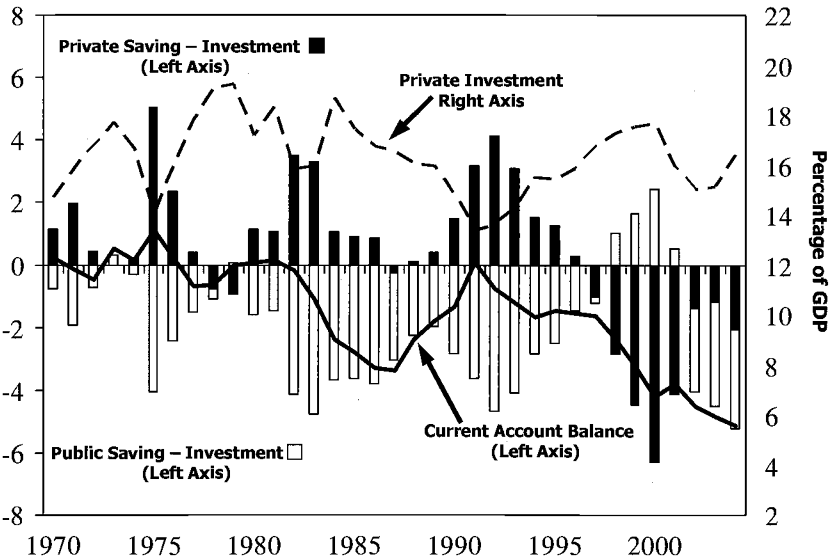

Fig. 9.6 U.S. current account and saving investment

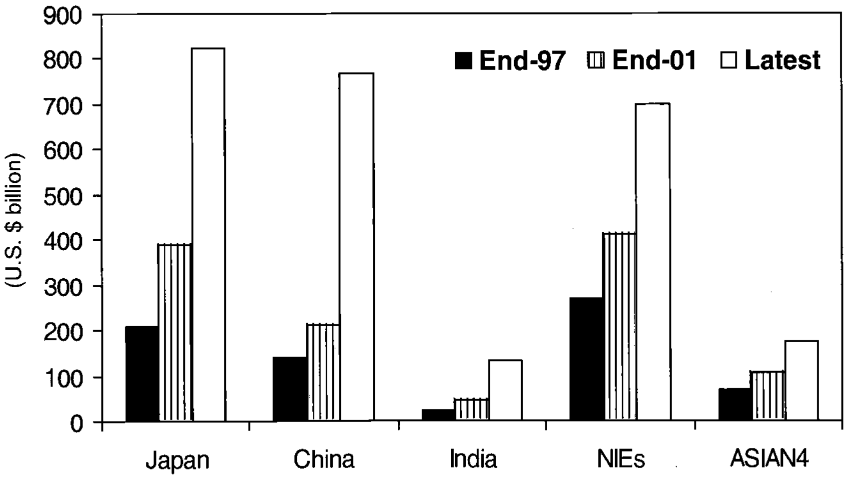

Fig. 9.7 Foreign exchange reserves
Source: International Financial Statistics and *Economist* magazine.

course, has been the sharp rise in personal wealth, resulting first from the equity boom of the 1990s and later from the sustained housing boom. Without continuing asset appreciation, however, the current low savings rate is unlikely to be sustained.)

Finally, figure 9.7 illustrates another important change, the rising level of Asian central bank reserves (most of which are held in dollars). At the end of 2004, foreigners owned 40 percent of all U.S. treasuries held outside the Federal Reserve System and the Social Security Administration Trust Fund. In addition, foreigners hold more than 30 percent of the combined debts of the giant mortgage financing agencies, Fannie Mae and Freddie Mac. These quasi-government agencies, whose debt is widely viewed as carrying the implicit guarantee of the U.S. federal government, have together issued almost as much debt as the U.S. government itself (netting out intergovernmental holdings). Indeed, netting out the treasuries held by the U.S. Social Security Trust administration and by the Federal Reserve System, the remaining treasuries held privately are of roughly the same order of magnitude as foreign central bank reserves. These reserves are held mostly by Asia (though Russia, Mexico, and Brazil are also significant) and held disproportionately in dollars. Indeed, over the past several years, foreign central bank acquisition of treasuries nearly equaled the entire U.S. current account deficit during a number of sustained episodes.

We acknowledge that these data in no way prove that U.S. profligacy needs to come to an end anytime soon. It is conceivable that the deficits will go on for an extended further period as the world adjusts to more globalized security markets, with foreign agents having a rising preference for holding U.S. assets. We do not believe, however, that this is the most likely scenario, particularly given that the composition of foreign flows into the United States remains weighted toward bonds rather than equity (at the end of 2004, only 38 percent of all foreign holdings of U.S. assets were in the form of direct investment or equity). The current trajectory has become particularly precarious now that the twin deficits problem of the 1980s has resurfaced. One likely shock that might reverse the U.S. current account is a rise in U.S. private saving—perhaps due to a slowdown or collapse in real estate appreciation. Another possible trigger is a fall in saving rates in Asia, which is particularly likely in Japan given its aging population and the lower saving rates of younger cohorts. Another, more imminent potential shock would be a rise in investment in Asia, which is still low even compared to investment in the late 1980s and early 1990s, even excluding the bubble level of investment in the mid-1990s just before the Asia crisis.

In the next section of the paper, we turn to an update of our earlier model that aims to ask what a change in the U.S. current account might do to global demand and exchange rates. We note that the model is calibrated on a version of our six puzzles paper (Obstfeld and Rogoff 2000b) that attempts to be consistent with observed levels of Organization for Economic Cooperation and Development (OECD) capital market integration and saving-investment imbalances. Less technically oriented readers may choose to skip directly to section 9.3.

9.2 The Model

The model here is a two-country extension of the small-country endowment model presented in Obstfeld and Rogoff (2000a) in which one can flexibly calibrate the relative size of the two countries. We go beyond our earlier model by differentiating between home and foreign produced tradables in addition to our earlier distinction between tradable and nontradable goods. (As we show in more detail in Obstfeld and Rogoff [2005], the traded-nontraded goods margin is considerably more important empirically when taken in isolation than is differentiation between imports and exports. However, the interaction between the two magnifies their joint effect.) We further extend our previous analysis by exploring more deeply the alternative shocks that might drive the ultimate closing of the U.S. current account gap.

Otherwise, the model is similar in spirit to our earlier paper on this topic. We draw the reader's attention to two features. First, by assuming that endowments are given exogenously for the various types of outputs, we are implicitly assuming that capital and labor are not mobile between sectors in the short run. To the extent global imbalances only close slowly over long periods (admittedly not the most likely case based on experience), then factor mobility across sectors will mute any real exchange rate effects (Obstfeld and Rogoff 1996). Second, our main analysis assumes that nominal prices are completely flexible. That assumption—in contrast to our assumption on factor mobility—leads one to sharply understate the likely real exchange rate effects of a current account reversal. As we discuss later, with nominal rigidities and imperfect pass through from exchange rates to prices, the exchange rate will need to move much *more* than in our baseline case in order to maintain employment stability.

The Home consumption index depends on Home and Foreign tradables, as well as domestic nontradables. (Think of the United States and the rest of the world as the two countries.) It is written in the nested form

$$C = [\gamma^{1/\theta} C_T^{(\theta-1)/\theta} + (1-\gamma)^{1/\theta} C_N^{(\theta-1)/\theta}]^{\theta/(\theta-1)},$$

where C_N represents nontradables consumption and C_T is an index given by

$$C_T = [\alpha^{1/\eta} C_H^{(\eta-1)/\eta} + (1-\alpha)^{1/\eta} C_F^{(\eta-1)/\eta}]^{\eta/(\eta-1)},$$

where C_H is the home consumption of Home-produced tradables, and C_F is home consumption of Foreign-produced tradables. Foreign has a parallel index, but with a weight α^* ($\alpha^* > 1/2$) on consumption of its own export good. This assumption of a relatively high domestic preference weight on domestically produced tradables, as opposed to the more common assumption of identical tradables baskets, generates a home consumption bias within the category of tradable goods.[6] The assumption can also be viewed as a stand-in for the explicit introduction of trade costs for tradable goods, which are omitted from the present model.

The values of the two parameters θ and η are critical in our analysis. Parameter θ is the (constant) elasticity of substitution between tradable and nontradable goods. Parameter η is the (constant) elasticity of substitution between domestically produced and imported tradables. The two parameters are important because they underlie the magnitudes of price responses to quantity adjustments. Lower substitution elasticities imply that sharper price changes are needed to accommodate a given change in quantities consumed.

The Home consumer price index (CPI) corresponding to the preceding consumption index C, measured in units of Home currency, depends on the prices of tradables and nontradables. It is given by

$$P = [\gamma P_T^{1-\theta} + (1 - \gamma)P_N^{1-\theta}]^{1/(1-\theta)},$$

where P_N is the Home-currency price of nontradables and P_T, the price index for tradables, depends on the local prices of Home- and Foreign-produced tradables, P_H and P_F, according to the formula

$$P_T = [\alpha P_H^{1-\eta} + (1 - \alpha)P_F^{1-\eta}]^{1/(1-\eta)}.$$

In Foreign there are an isomorphic nominal CPI and index of tradables prices, but with the latter attaching the weight $\alpha^* > 1/2$ to Foreign exportable goods. These exact price indexes are central in defining the real exchange rate.

Though we consider relaxing the assumption in our later discussion, our formal analysis assumes the law of one price for tradables throughout. Thus $P_F = \varepsilon P_F^*$ and $P_H^* = P_H/\varepsilon$, where ε is the Home-currency price of Foreign currency—the nominal exchange rate. (In general we will mark Foreign nominal prices with asterisks.) The terms of trade are

$$\tau = \frac{P_F}{P_H} = \frac{P_F^*}{P_H^*}$$

and the real exchange rate is

6. Warnock (2003) takes a related approach. In an earlier version of the paper, we assumed "mirror symmetric" preferences, such that α was also the weight of Foreign tradables in the Foreign tradable consumption basket. In the following simulation, however, the United States is only about one quarter of the world economy, so it is more reasonable to think that $1 - \alpha^*$, the weight that Foreigners attach to imports from the United States, will be smaller than $1 - \alpha$, the weight that U.S. residents attach to their own imports from the rest of the world. This modification tends to increase the terms-of-trade effect of current account adjustment as well as the overall resulting real depreciation. We thank Chris Erceg for suggesting this modification. The framework of Obstfeld and Rogoff (2005) models a world economy consisting of three equally sized regions.

$$q = \frac{\varepsilon P^*}{P}.$$

Note that because of the home bias in consumption of tradables, purchasing power parity does not hold for the differing preferred baskets of tradables in each country, even if the law of one price holds for individual tradable goods. That is, $P_T \neq \varepsilon P_T^*$. Indeed, the ratio $\varepsilon P_T^*/P_T$ is given by

$$\frac{\varepsilon P_T^*}{P_T} = \frac{[\alpha^* \tau^{1-\eta} + (1-\alpha^*)]^{1/(1-\eta)}}{[\alpha + (1-\alpha)\tau^{1-\eta}]^{1/(1-\eta)}},$$

while the real exchange rate is

$$q = \frac{\varepsilon P_T^*}{P_T} \times \frac{[\gamma + (1-\gamma)(P_N^*/P_T^*)^{1-\theta}]^{1/(1-\theta)}}{[\gamma + (1-\gamma)(P_N/P_T)^{1-\theta}]^{1/(1-\theta)}}.$$

Given our assumption of home-export consumption preference, the measured real exchange rate depends positively on the terms of trade (that is, $dq/d\tau > 0$).

Because the assumed utility functions imply constant elasticity of demand for each of the endowment goods, we can conclude that the global market for the home produced good clears when

$$Y_H = \alpha\gamma\left(\frac{P_H}{P_T}\right)^{-\eta}\left(\frac{P_T}{P}\right)^{-\theta} C + (1-\alpha^*)\gamma\left(\frac{P_H/\varepsilon}{P_T^*}\right)^{-\eta}\left(\frac{P_T^*}{P^*}\right)^{-\theta} C^*,$$

where Y_H is home's endowment of its tradable good. There is a corresponding market-clearing condition for the foreign tradable supply, Y_F. For Home nontradables we have

$$Y_N = (1-\gamma)\left(\frac{P_N}{P}\right)^{-\theta} C,$$

and, of course, there is again a corresponding Foreign condition.

Let us abstract from the underlying determinants of domestic and foreign saving and consumption. Thus, we take as given C and C^*, along with the endowments Y_H, Y_F, Y_N, and Y_N^*. Then the preceding market-equilibrium conditions allow us to solve for relative prices. For example, we can rewrite the equilibrium condition for the home export's market as

$$Y_H = \alpha\left(\frac{P_H}{P_T}\right)^{-\eta} C_T + (1-\alpha^*)\left(\frac{P_H/\varepsilon}{P_T^*}\right)^{-\eta} C_T^*,$$

implying that the price indices must be governed by

$$P_H Y_H = \alpha\left(\frac{P_H}{P_T}\right)^{1-\eta} P_T C_T + (1-\alpha^*)\left(\frac{P_H}{\varepsilon P_T^*}\right)^{1-\eta} \varepsilon P_T^* C_T^*. \tag{1}$$

Residually, we can calculate Home's current account surplus CA, measured in Home currency, as

$$\text{CA} = P_H Y_H + iF - P_T C_T,$$

where F denotes Home net foreign assets and i (which we take as given) denotes the interest rate (both in Home currency units). For Foreign, the corresponding relationship is

$$\varepsilon \text{CA}^* = \varepsilon P_F^* Y_F - iF - \varepsilon P_T^* C_T^* = -\text{CA}.$$

As a first pass to understanding the exchange rate impact of global current account rebalancing, we begin by solving analytically for the effects of shocks that make CA = 0. (If there is no production effect, such shocks are best thought of as shocks to relative Home and Foreign demand. When we move later to consider supply shocks, we will allow relative outputs to move simultaneously.) Substituting for $P_T C_T$ and $\varepsilon P_T^* C_T^*$ in equation (1) and its Foreign-tradable analog, one gets

$$(2) \qquad \begin{aligned} P_H Y_H &= \alpha\left(\frac{P_H}{P_T}\right)^{1-\eta}(P_H Y_H + iF - \text{CA}) \\ &\quad + (1-\alpha^*)\left(\frac{P_H}{\varepsilon P_T^*}\right)^{1-\eta}(P_F Y_F - iF + \text{CA}), \\ P_F Y_F &= (1-\alpha)\left(\frac{P_F}{P_T}\right)^{1-\eta}(P_H Y_H + iF - \text{CA}) \\ &\quad + \alpha^*\left(\frac{P_F}{\varepsilon P_T^*}\right)^{1-\eta}(P_F Y_F - iF + \text{CA}), \end{aligned}$$

for tradables, while for the nontradables markets, one can show that

$$(3) \qquad P_N Y_N = \frac{1-\gamma}{\gamma}\left(\frac{P_N}{P_T}\right)^{1-\theta} P_T C_T = \frac{1-\gamma}{\gamma}\left(\frac{P_N}{P_T}\right)^{1-\theta}(P_H Y_H + iF - \text{CA}),$$

$$(4) \qquad \varepsilon P_N^* Y_N^* = \frac{1-\gamma}{\gamma}\left(\frac{P_N^*}{P_T^*}\right)^{1-\theta}(\varepsilon P_F^* Y_F - iF + \text{CA}).$$

Of the preceding conditions, three are independent, allowing solution for the terms of trade τ, P_N/P_T^*, P_N^*/P_T^*, and hence the real exchange rate, q. Notice the presence of a transfer effect in the equations above. Because we assume $\alpha + \alpha^* > 1/2$, the stock of net foreign assets influences equilibrium relative prices. It will be most helpful to rewrite the equations in terms of ratios to nominal tradable GDPs ($P_H Y_H$ and $P_F Y_F$), the ratios of nontradable to tradable supplies, and the relative sizes of the two countries' tradables sectors. Let ca = CA/($P_H Y_H$) and $f = F/(P_H Y_H)$. Let $\sigma_T = Y_N/Y_F$, $\sigma_N = Y_N/Y_H$, and $\sigma_N^* = Y_N^*/Y_F$. Finally, let $x = P_N/P_T$ and $x^* = P_N^*/P_T^*$. Then we can write the three independent equations (2) to (4) as

$$(5) \qquad 1 = \alpha \frac{1}{[\alpha + (1-\alpha)\tau^{1-\eta}]}(1 + if - \text{ca})$$
$$+ (1-\alpha^*)\frac{1}{[\alpha^*\tau^{1-\eta} + (1-\alpha^*)]}\left(\frac{\tau}{\sigma_T} - if + \text{ca}\right),$$
$$\sigma_N = \left(\frac{1-\gamma}{\gamma}\right)x^{-\theta}[\alpha + (1-\alpha)r^{1-\eta}]^{1/(1-\eta)}(1 + if - \text{ca}),$$

and

$$\sigma_N^* = \left(\frac{1-\gamma}{\gamma}\right)(x^*)^{-\theta}[\alpha^* + (1-\alpha^*)\tau^{-(1-\eta)}]^{1/(1-\eta)}\left(1 - i\frac{\sigma_T}{\tau}f + \frac{\sigma_T}{\tau}\text{ca}\right).$$

The real exchange rate q is given by

$$(6) \qquad q = \frac{[\alpha^*\tau^{1-\eta} + (1-\alpha^*)]^{1/(1-\eta)}}{[\alpha + (1-\alpha)\tau^{1-\eta}]^{1/(1-\eta)}} \times \frac{[\gamma + (1-\gamma)(x^*)^{1-\theta}]^{1/(1-\theta)}}{[\gamma + (1-\gamma)x^{1-\theta}]^{1/(1-\theta)}}.$$

A helpful approximation to equation (6) is given by

$$(7) \qquad \Delta \log q \approx \gamma(\alpha + \alpha^* - 1)\Delta \log \tau + (1-\gamma)\left[\Delta \log\left(\frac{P_N^*}{\varepsilon P_N}\right)\right].$$

The preceding expression relies, in turn, on an estimate of the change in relative tradables price indexes, $\Delta \log(\varepsilon P_T^*/P_T) \approx (\alpha + \alpha^* - 1)\Delta \log \tau$. As expression (7) illustrates, the larger the share of nontraded goods $(1 - \gamma)$ in consumption, the bigger the effect of changes in the relative international price of nontraded goods. Similarly, the effect of the terms of trade on the real exchange rate q depends on the degree of home bias, captured by $\alpha + \alpha^* - 1$. Absent home bias ($\alpha = \alpha^* = 1/2$), the terms of trade cannot affect the real exchange rate in (7), because τ affects both countries' consumption deflators in the same way. Note that the preceding decomposition is essentially an accounting relationship, not a behavioral one. Of course, $\Delta\tau$ will be smaller the more substitutable are tradable goods (the higher is η) and the greater is the degree of home bias in tradables consumption, whereas the change in the relative price of nontraded goods across countries is smaller the greater the elasticity of substitution between traded and nontraded goods, θ.

With these analytical results in hand, we now proceed to study the model's quantitative implications.

9.3 The Exchange Rate Impacts of Rebalancing Global Current Accounts

One can potentially do a number of alternative experiments within the preceding framework. For example, as already discussed, just letting CA go to zero effectively captures a pure relative demand-driven current account reduction (that is, rebalancing of current accounts because U.S. aggregate demand falls while foreign aggregate demand rises). And, as we have also already alluded, one can simulate any accompanying effects of a relative productivity shocks by varying Home and Foreign relative output at the same time as we let the current account go to zero.[7]

Other exercises include trying to simulate the effects of a rise in U.S. government war expenditures. To parameterize that exercise, we need to ask how military spending is allocated between tradables and nontradables as well as between Home and Foreign. We are assuming that international debt is denominated in dollars, but that assumption is easily relaxed.

In our calibration we assume that $P_H Y_H/(P_H Y_H + P_N Y_N) \approx 0.25$ so that a deficit-to-tradables ratio of $\mathrm{CA}/P_H Y_H = -0.2$ approximates the current external deficit of the United States. We take net U.S. foreign assets (in dollars), F, divided by the dollar value of traded goods output, $P_H Y_H$, to be –0.8 and assume a nominal interest rate of 0.05 per year. Also, under the assumption that $Y_H/Y_F = 0.22$, the dollar value of tradables produced by the United States fluctuates between about 20 and 25 percent of global dollar sales of tradables (depending on the terms of trade).[8] We take $\eta = 2$ or 3, $\gamma = 0.25$, $\alpha = 0.7$, and $\alpha^* = 0.925$. For the most part, this calibration is broadly consistent with the one that we deduced in Obstfeld and Rogoff (2000b), where we argued that realistic trade costs (here, a large share of nontraded goods in consumption) can explain the degree of international capital-market integration that we actually observe among the OECD countries. We have taken the international trade elasticity η to be quite a bit lower than the value of $\eta = 6$ assumed in Obstfeld and Rogoff (2000b), however, both because short-run trade elasticities are smaller and because estimates based on microdata are quite a bit larger than those estimated to apply to aggregated U.S. trade flows.[9] Our calibration also requires an assumption about the elasticity of substitution in consumption between tradables and nontradables, θ. In our 2000a paper, we argued that a unit elasticity was a reasonable base case and that the empirical literature would support even a lower estimate. Because it will turn out that the exchange rate change is larger the smaller θ and because we want to include a conservative benchmark, we allow for θ as large as 2 in order to see how

7. Chapter 10 by Faruqee et al. in this volume studies current account adjustment scenarios within a dynamic multiregion model.

8. We assume that $Y_N/Y_H = Y^*_N/Y_F = 1$. The precise choices of these numbers have no bearing on the logarithmic changes in ratios of nontradable to tradable prices. Within rather large limits of variation, they have little effect on the change in the overall real exchange rate. The results are very close, for example, if we instead take $Y_N/Y_H = Y^*_N/Y_F = 3$, as in Obstfeld and Rogoff (2005).

9. See, for example, Gagnon (2003). Chapter 7 by Mann and Plück in this volume presents a critical assessment of trade elasticity estimation.

Table 9.1 **Return to external balance with outputs, NFA constant**

θ	η	Fall in terms of trade (%)	Real dollar depreciation (%)
1	2	15.8	32.3
1	3	9.4	26.4
2	2	15.8	19.1
2	3	9.4	14.4
0.5	2	15.8	64.4
1	1,000	0.0	17.6

a higher elasticity of intranational substitution (that is, between tradables and nontradables) might moderate the exchange rate effects, but we also briefly look at the case $\theta = 0.5$, which certainly is consistent with several of the empirical estimates reported in the literature (see the references in Obstfeld and Rogoff 2005).[10]

In table 9.1, we ask what happens if the U.S. accounts for roughly a quarter of world GDP and a relative demand shock abruptly closes its current account deficit from 5 percent of GDP to full balance. (We use 5 percent as a conservative figure; nearly identical results would ensue if the deficit ratio fell from, say, 6 percent to 1 percent.) Suppose, for example, that an end to the housing boom in the United States reduces consumption there, while improving growth expectations lead to higher consumption levels in Europe, Japan, and China.

In our first (low-elasticity) case of $\theta = 1$, $\eta = 2$, the real exchange rate needs to move by about 32.3 percent (computed as a log difference), more than double the effect we found in our earlier small-country model with flexible prices. (Our favored estimate, which allows for nominal rigidities and incomplete pass-through in the short run, is going to be higher still, see the following.) Why is the effect so large? One part of it comes from the fact that we are now allowing for terms of trade changes, which reinforce and magnify the effects of the relative price of nontraded goods on the real exchange rate. (The shift in the locus of global demand away from the United States leads to a relative drop in demand for U.S. traded goods because U.S. citizens are assumed to have a relative preference for U.S.-produced tradables. Thus, as table 9.1 also illustrates, the U.S. terms of trade fall sub-

10. Solution of the model is straightforward. To handle its nonlinearity, we write equation (2) in the form

$$1 = \alpha\frac{1}{z}(1 + if - \text{ca}) + (1 - \alpha^*)\left[\frac{1 - \alpha}{\alpha^*(z - \alpha) + (1 - \alpha)(1 - \alpha^*)}\right]\left(\frac{\tau}{\sigma_T} - if + \text{ca}\right),$$

where $z \equiv [\alpha + (1 - \alpha)\tau^{1-\eta}]$. Given τ, this is a quadratic equation in z. One can solve for z using the quadratic formula, then extract the implicit solution for a τ using the definition of z, then substitute the τ solution back into the quadratic, solve again for z, and iterate until convergence is achieved.

stantially, by about 15.8 percent.) Some of the difference comes from the fact that whereas the U.S. current account was 4.4 percent of GDP in 2000, it is over 6 percent today, so closing up the gap leads to a bigger exchange rate movement.

A final but key difference compared with the small-country case arises, however, because we are now allowing for general equilibrium effects due to price movements outside of the United States. To see the effect of this change most clearly, abstract temporarily from terms of trade changes. Within the United States, the elimination of the current account deficit implies something like a 20 percent fall in the demand for traded goods (as the current account deficit is 5 percent of GDP, while traded goods production accounts for about 25 percent of GDP). Thus, the relative price of nontraded goods needs to fall by 20 percent when the elasticity of intranational substitution is 1. But now, we must also take into account the fact that abroad, the price of nontraded goods must *rise* in parallel to the effect in the United States. If the world economy's two regions were roughly equal in size and there were no terms of trade effects, then in our general equilibrium model, the real exchange rate change would have to be twice that in the partial equilibrium model. But if the U.S. accounts for only 1/4 of global traded output—so that a U.S. current account deficit of 5 percent of GDP corresponded to a foreign current account surplus of 1.67 percent of foreign GDP—the effect would be about 33 percent instead of 100 percent larger—a change of about 26.6 percent (= 20 percent × 1.33) in the component of the dollar real exchange rate attributable exclusively (that is, ignoring terms-of-trade effects) to relative nontradable and tradable prices at home and abroad.

A convenient if rough way to get a handle on the sizes of the total real exchange rate change (including terms-of-trade effects) is to rewrite (7) in the equivalent form

$$\Delta \log q \approx (\alpha + \alpha^* - 1)\Delta \log \tau + (1 - \gamma)\left[\Delta \log\left(\frac{P_N^*}{P_T^*}\middle/\frac{P_N}{P_T}\right)\right]$$

which once again is based on the approximation $\Delta\log(\varepsilon P_T^*/P_T) \approx (\alpha + \alpha^* - 1)\Delta \log \tau$.[11] In our simulation $\alpha + \alpha^* - 1 = 0.625$, $1 - \gamma = 0.75$, and $\Delta \log \tau$

11. It is instructive to compare the preceding approximation to the equivalent equation (7). The preceding version makes it obvious that, *given* relative prices of tradables and nontradables, the change in relative tradables price indexes feeds through one-for-one into the real exchange rate and not merely by the fraction γ one might guess from a hasty glance at equation (7). Holding all else constant in equation (7), we can see, for example, that a percent rise x in $\varepsilon P_T^*/P_T$ will have not only a *direct* effect on q equal to γx percent, but, in addition, an *indirect* effect equal to $(1 - \gamma)x$ percent due to the induced changes in the relative international prices of nontradables. Engel (1999) uses a similar decomposition in his empirical study of the U.S. dollar's real exchange rate.

= 15.8%. We substitute above the back-of-the-envelope guess of 26.6 percent for $\Delta \log[(P_N^*/P_T^*)/(P_N/P_T)]$ to get

$$\Delta \log q \approx (0.625)(0.158) + (0.75)(0.266) = 9.9\% + 20.0\% = 29.9\%.$$

This answer is only about 8 percent off of the model's exact prediction of 32.3 percent. The minor discrepancy is the net result of algebraic approximations, the initial divergence between tradables consumptions and tradable endowments, and additional terms-of-trade effects that enter the equilibrium conditions (3) and (4).[12]

With higher elasticities all around, for example, as in the fourth row of table 9.1, changes in terms of trade and real exchange rates are naturally smaller. When $\theta = 2$ and $\eta = 3$, the terms of trade fall by only 9.4 percent, whereas real dollar depreciation is 14.4 percent. Lowering the tradable-nontradable substitution elasticity θ has a particularly dramatic effect on real dollar depreciation. The fifth row of table 9.1 alters the case in the first row by taking $\theta = 0.5$; in this case, the real exchange rate change is 64.4 percent, double what it is when $\theta = 1$.

We emphasize that in a quantitative decomposition of the overall real exchange rate response, substitution between U.S.-produced and foreign traded goods can be less important empirically than substitution between traded and nontraded goods. This imputation is due in part to the large share of nontradables in the CPI. Our mode of analysis, therefore, stands in marked contrast to the bulk of applied policy work on international trade flows, which asks only how relative *traded* goods prices must change in order to eliminate a given external trade imbalance. To ascertain the quantitative importance of the intranational substitution margin, the last row of table 9.1 looks at the case of a very high international substitution elasticity, $\eta = 1000$, in which case the terms of trade change is virtually nil. In that case, real dollar depreciation is still 17.6 percent, which equals a fraction 17.6/32.3 = 54.5 percent of its value when $\eta = 2$. Thus, in the case shown in the first row of table 9.1, only a minority of the overall real exchange rate change is attributable to the terms of trade. The terms-of-trade effect could dominate if the elasticity of substitution between traded and nontraded goods were higher or that between imports and exports lower, but this may not be the most likely scenario. Nevertheless, adding the

12. Using equation (4) for Home, the proportional fall in tradables consumption, given the initial current account deficit and external debt, is approximated by

$$\hat{C}_T \approx \frac{\Delta \text{ca}}{1 + if - \text{ca}} - (1 - \alpha)\hat{\tau} \approx -(0.86)(20\%) - (0.3)(15.8\%) \approx -22\%.$$

Thus, taking account of the corresponding effects in Foreign, a lower-bound estimate of the real exchange rate component $\Delta \log[(P_N^*/P_T^*)/(P_N/P_T)]$ would be (1.33)(22%) = 29.3% rather than the 26.6% applied in the preceding text. Using this number instead, the total real exchange rate change is approximated by (0.625)(0.158) + (0.75)(0.293) = 9.9% + 22.0% = 31.9%.

Table 9.2 **Return to external balance, U.S. tradable output expands by 20 percent**

θ	η	Fall in terms of trade (%)	Real dollar depreciation (%)
1	2	22.4	24.0
1	3	13.5	15.9
2	2	22.4	18.1
2	3	13.5	11.5

terms-of-trade channel does substantially magnify the requisite exchange rate change, both through its direct effect and through its interaction with the relative price of nontraded goods.

Table 9.2 asks what happens if the shock that closes up current accounts is associated with a large relative *rise* (20 percent) in U.S. productivity in tradables. This will, of course, mute the real exchange rate effect: higher production of tradables allows the United States to cut its current account deficit without a correspondingly large cut in consumption. In our base case, $\theta = 1$, $\eta = 2$, the dollar depreciates in real terms by only 24 percent as compared with the 32.3 percent in table 9.1; but remember, this is in the face of a huge increase in traded goods production that depresses the U.S. terms of trade by 22.4 percent. The effect is approximately linear, so for more realistic values of the productivity shock (e.g., $\Delta Y_H / Y_H = 0.02$), the effect would be to reduce the exchange rate movement implied by full current account adjustment by a fairly insignificant amount. For higher elasticities, both the terms-of-trade decline and the real dollar depreciation are smaller. A corollary of our approach is that the precise factors that change the current account have a central bearing on the accompanying real exchange rate response.

It may seem anomalous to the reader that it takes a *rise* in relative U.S. productivity in tradables to dampen the exchange rate effect of a reduction in the U.S. deficit; however, this is perfectly logical. Policy analysts frequently argue that a rise in relative productivity in the rest of the world will mute the exchange-rate impact of global current account rebalancing. But this is correct only if the foreign productivity rise is concentrated in the nontradables sector—for example, if foreign retailing productivity levels start to catch up to those of the United States, which has experienced a retailing productivity boom over the past twenty years. Indeed, our model suggests that the U.S. nontraded-goods productivity boom could help explain the widening of the U.S. current account deficit.[13] We hope to explore the issue in a follow-up paper.[14]

13. According to Gordon (2004), over 50 percent of the U.S.-Europe productivity differential over the past decade is due to retailing, with another 25 percent due to wholesale.

14. For foreign productivity growth in tradables to promote real dollar appreciation, we would need an implausible combination of higher home consumption bias in tradables, a larger overall consumption share of tradables, and lower trade elasticities.

Table 9.3 **Return to external balance, outputs constant, NFA endogenous**

θ	η	Fall in terms of trade (%)	Real dollar depreciation (%)
1	2	13.4	27.3
1	3	8.2	22.8
2	2	14.4	17.3
2	3	8.8	13.3

Table 9.4 **Return to external balance, military spending expands permanently**

θ	η	Fall in terms of trade (%)	Real dollar depreciation (%)
1	2	16.5	35.3
1	3	9.9	29.1
2	2	16.5	20.6
2	3	9.9	15.7

Table 9.3 allows the real dollar depreciation to reduce the real value of the U.S. net foreign debt, in line with Tille's (2005) estimates of U.S. foreign assets and liabilities denominated in foreign currencies.[15] As suggested previously, the effect on the extent of depreciation is not large, even when the reduction in net foreign debt is substantial. (This is only to be expected: even for gross foreign assets and liabilities as large as those of the United States, debt reduction cannot be significant when the exchange rate change is small.) For example, in the first row of table 9.3, the net foreign debt of the United States is reduced from 0.8 to only 0.18 of nominal tradables output, yet the degree of real dollar depreciation is still 27.3 percent (as compared with 32.3 percent in table 9.1), and the fall in the terms of trade is 13.4 percent (as compared with 15.8 percent in table 9.1). For higher elasticities, the debt reduction is smaller, as is the effect on the ultimate equilibrium relative-price changes.[16]

A final exercise, reported in table 9.4, assumes that the closing of the deficit is accompanied by a shift to permanently higher military and security expenditures, for example, due to an open-ended commitment of American force in Iraq. (In table 9.4, we do not endogenize net foreign assets.) Nordhaus's (2002) estimates suggest that roughly 3 percent of U.S. tradables would be required annually for this purpose. We assume that all the resources used are tradables, drawn roughly half out of U.S. tradables

15. The revaluation calculation assumes that nominal and real depreciation coincide, as is justified in the following.

16. The exercise of allowing for valuation effects is executed in much more detail in Obstfeld and Rogoff (2005), who similarly find that valuation effects can only temper the exchange rate adjustments by roughly 1/5. Notice that now, the extent of real depreciation affects the equilibrium terms of trade change because net foreign assets influence spending on tradables.

and half out of foreign tradables. In the low-elasticity case of $\theta = 1$ and $\eta = 2$, both the real depreciation and the terms-of-trade decline are greater than in table 9.1, but not hugely so: a 35.3 percent versus 32.3 percent depreciation and a 16.5 percent versus 15.8 percent terms-of-trade decline. The differential effects are smaller at higher elasticities, as expected.

Some readers will be more interested in understanding what happens to the nominal exchange rate as opposed to the real exchange rate. To make this translation, we must, of course, make an assumption about monetary policy. The simplest assumption is that central banks target CPI inflation rates in which case, under flexible prices, $\Delta \log \varepsilon = \Delta \log q$. (Allowing for the case of GDP deflator targeting is a bit more complicated but turns out to make only a marginal difference, so we do not report the results here.)

All of the above analysis assumes flexible prices and complete pass-through from exchange rates to final goods prices. While we do not explore price rigidities and imperfect pass-through explicitly in this paper, we can draw some preliminary conclusions from the results of our earlier small-country model. If pass-through from exchange rates to prices is 50 percent (as we assumed in our 2000a paper), the requisite change in the exchange rate will have to be roughly double the ones calculated in the tables, assuming that central banks target overall inflation and allow the exchange rate to move to maintain full employment in the nontraded-goods sector. In fact, newer estimates suggest that for the United States, pass-through is less than 50 percent after one year and only 25 percent in the short run (see Campa and Goldberg 2002), in which case the immediate overshooting would be twice as large. Because the pass-through following a very large exchange rate change probably is higher, we might take 50 percent as a conservative estimate to use for the medium-term pass-through to import prices.

9.4 Parallels with the Early 1970s

Given our analysis, why then do some, such as Greenspan (2004), argue that a decline in the U.S. current account deficit is likely to be benign? Greenspan points to the fact that capital markets are becoming increasingly integrated and cites reductions in home bias in equities; the secular waning of the Feldstein-Horioka puzzle; and other factors considered in our 2000b paper on the six major puzzles in international macroeconomics, which are also in our 2000a paper. But our calibration here is totally consistent with the current degree of integration of capital markets and, indeed, is consistent with the calibration of our earlier paper. What matters for the exchange rate effect here is not the depth of international capital markets but the costs of adjusting to lower tradables consumption in the *goods* markets. Given our assumptions here the nontraded goods account for 75 percent of GDP (as we found in our earlier calibrations) and that there is home bias in tradable-goods consumption (as is consistent with a broad variety of evidence from the trade literature), then U.S. current account adjustment necessarily requires a significant exchange rate adjustment. True, the adjustment is smaller the smaller the adjustment in the current account (our model, for realistic parameters, exchange rate adjustments are approximately linear in trade balance adjustments). But even a closing up of the U.S. current account from 6 percent to 3 percent would require very substantial exchange rate adjustments, especially if one takes the likely effects of exchange rate overshooting into account.

The real question is not whether there needs to be a big exchange rate adjustment when the U.S. current account goes from its current unsustainable level to a lower, more sustainable one. For most plausible shocks leading to global rebalancing, this is a given. The real question is how drastic the economywide effects are likely to be. This is an open question. We agree with Greenspan's (2004) argument that some markets are becoming more flexible and that this should allow the world economy to absorb the blow better than it might have otherwise. But whereas U.S. markets may have achieved an impressive degree of flexibility, Europe (and, to a lesser extent, Japan) certainly has not. The rest of the world is not going to have an easy time adjusting to a massive dollar depreciation. It is also the case that world derivatives markets have exponentially expanded in comparison with even ten years ago. The increasing diversity of banks' counterparty risk (see, for example, the International Monetary Fund's *Global Financial Stability Report,* 2005a) raises the chances that a massive dollar movement will lead to significant financial problems (events along the lines of the collapse of long-term capital management in 1998). Such problems are inherently difficult to foresee until they suddenly unfold.

Of course, the optimists can point to the dollar's relatively benign fall in the late 1980s (though arguably it was a critical trigger in the events leading up to Japan's collapse in the 1990s). But perhaps the greatest concern is that today's environment has more parallels to the dollar collapse of the early 1970s than to the late 1980s. We hope to address this analogy in future research.[17] For now, however, we note some broad similarities. During the years 1971 to 1972 (in the run-up to the November 1972 election), the United States had relatively loose fiscal policy (fueled particularly by a generous election-year increase in social security benefits), soft monetary policy, and faced open-ended security costs. Back then it was Vietnam; today it is Iraq and homeland security, the combined costs of which could easily match the cumulative 12 percent of gross national product (GNP) that the Vietnam War cost or the 15 percent of GNP that financed the Korean War (see Nordhaus 2002). There were twin deficits (albeit significantly smaller

17. Chapter 6 in this volume by Adalet and Eichengreen and chapter 4 by Freund and Warnock survey the empirical characteristics of past current account adjustment episodes.

in the 1970s than they are today), and energy prices were a major factor (although the 1974 oil price hike was much greater, when measured in real terms, than anything see yet in 2004). The year 1973 saw a breakdown of the Bretton Woods fixed exchange rate system (mainly involving European countries), but today there is a quasi-fixed exchange rate system between the United States and much of Asia.

Broadly speaking, one has to be concerned that if the U.S. current account closes up under a backdrop more like the 1970s than the 1980s, the outcome may be much more severe than it seemed to be during the 1980s dollar descent. Aside from a boomerang effect of slow foreign growth on U.S. exports, there are further risks of rising inflation and interest rates and perhaps even a significant financial crisis (see Obstfeld and Rogoff [2005] for further discussion).

9.5 Conclusions

In the paper, we have generalized our discussion in Obstfeld and Rogoff (2000a) to take account of general equilibrium effects and terms of trade changes. Both are important. First, the large size of the United States in the world economy (about 22 percent of global GDP) implies that when the U.S. current account shrinks, the same price dynamic needed to induce U.S. citizens to tilt consumption toward nontraded goods must play out in reverse in the rest of the world. As a consequence, the requisite dollar depreciation is larger than if the United States were a small country. A number of factors may mitigate the required degree of depreciation (a higher elasticity of substitution between tradables and nontradables than in our baseline and a greater degree of factor mobility across sectors). Notwithstanding these qualifications, and given the depreciation that has already occurred in the last couple of years, it still seems quite conservative to suppose that the trade weighted dollar needs to depreciate at least another 20 to 25 percent as the current account rebalances. If the rebalancing takes place over a very long period, the change could be significantly less as factor mobility allows real adjustment to mitigate the need for price adjustment. On the other hand, if the adjustment were to take place quickly (a definite risk), then there could be a large potential overshoot in the event of a rapid reversal causing the trade-weighted dollar to fall by 40 to 50 percent or more.

Second, taking into account terms-of-trade effects (the relative price of a country's imports and exports) also levers up the required depreciation of the dollar when the U.S. current account closes up, though this effect is quantitatively somewhat smaller than the one implied by the requisite movements in relative prices of traded and nontraded goods. (There is also an interaction between the two effects, though it is smaller than the direct impacts.)

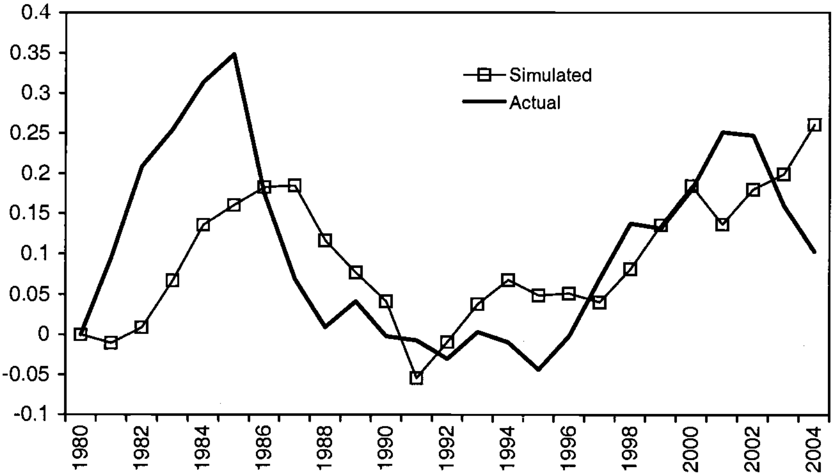

Fig. 9.8 Simulated versus actual log U.S. dollar real effective CPI exchange rate: Effects of current account (CA) and net foreign assets (NFA) only ($\theta = 1$)

One way to assess the general plausibility of the central mechanism driving our model's exchange rate prediction is to compare the model's retrospective predictions with history.[18] We do this in an extremely simple way. We solve for changes in the equilibrium dollar real exchange rate abstracting from all other than the current account balance and the stock of net foreign assets. For the parameter values assumed previously (with $\theta = 1$, $\eta = 2$), figure 9.8 shows the resulting simulated and actual log real exchange rate paths, both normalized to zero in 1980, a year of approximate external balance for the United States. Perhaps surprisingly in view of the many potential caveats listed in the preceding, the model indeed tracks the broad movements in the dollar, with the exception of the most recent depreciation cycle. Perhaps the most glaring discrepancy is the much-studied episode starting in 1985, when the dollar's descent from its peak, driven by market anticipations as well as concerted policy initiatives, began several years in advance of the current account's turn toward balance. The last few years' experience looks similar, with the U.S. current account worsening (albeit more sharply) as the dollar dives. Of course, figure 9.8 raises quite starkly the question of when the current account will adjust and what the consequences for the dollar might be if it does not do so soon.

While predicting a dollar cycle in the 1980s, figure 9.8 does not capture its magnitude. Figure 9.9, however, shows that with the still empirically plausible assumption of $\eta = 0.6$, the model does capture the Reagan-era

18. We thank Mick Devereux for suggesting this exercise and implementing a preliminary version of it.

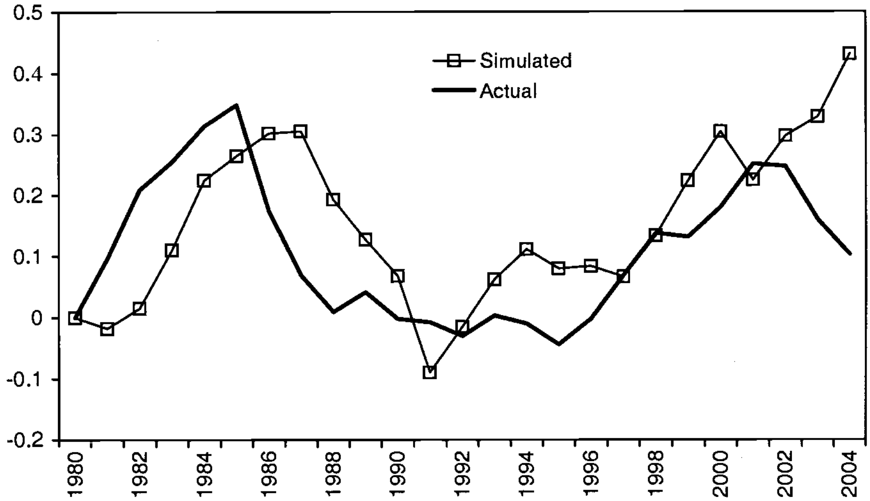

Fig. 9.9 Simulated versus actual log U.S. dollar real effective CPI exchange rate: Effects of CA and NFA only ($\theta = 0.6$)

cycle quantitatively. Under this parameterization, however, the discrepancy of the last few years is accentuated, with a large and growing divergence between actual dollar depreciation and the appreciation predicted by the model in the face of a growing external deficit. Possibly the dollar's fall in the last few years reflects anticipations of the eventual current account adjustment, a short-run factor not present in our model. Over the last two decades of the twentieth century, such anticipations were correct over the longer term. The anomalous post-2002 divergence in figure 9.9 suggests that if U.S. spending does not fall more into line with income soon, inflationary pressures will gather momentum.

Our discussion has not touched explicitly on issues of capital-market integration and instead has focused on the relative price movements needed to preserve goods-market equilibrium in the face of a current account adjustment. The extent of capital-market integration would enter the market primarily through the rate of interest that the United States must pay foreigners on its external obligations. Even if the United States can greatly expand its foreign debts without triggering a sharp rise in its cost of foreign finance, our analysis implies that when U.S. current account adjustment comes, the exchange rate effects may be massive. Unless gross debts rise further or the U.S. external borrowing rate rises sharply, however, the reduction in the current account itself will still be the dominant factor altering international relative prices.

Of course, as we noted previously, it is difficult to say with certainty when the U.S. current account adjustment will commence or whether it will be gradual or abrupt. With lower integration in the world capital markets, abrupt current account adjustment, sooner rather than later, is more likely. If greater financial integration allows bigger and more protracted U.S. deficits, however, the ultimate relative price adjustments will have to be more extreme. In other words, further deepening of global capital markets may postpone the day of reckoning. But as long as nontraded goods account for the lion's share of U.S. output, a sharp contraction in net imports—a significant closing of the U.S. current account—will lead to a large exchange rate adjustment under most plausible scenarios. That adjustment will be sharper the longer is the initial rope that global capital markets offer to the United States, though the main variable will be the type of shock that sets off adjustment (for example, a housing price crash or an abrupt change in foreign central bank portfolio demand) and the speed with which the trade balance is forced to adjust.

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Comment Kristin J. Forbes

Introduction

Authors in Victorian England often released one chapter of a new novel at a time as part of a weekly or monthly periodical—a format known as *serial publishing.* The author would then have a chance to gauge the public's reaction to the latest installment and adjust the storyline. The public would not know how the story would evolve—and, instead, would have to keep buying the periodical, installment by installment, continually reassessing how the novel might end.

Reading the latest variant of the Obstfeld and Rogoff analysis of the U.S. current account position reminded me of what it must have felt like to read a chapter of the latest Dickens novel in the weekly periodical. Each version of the Obstfeld and Rogoff analysis is more sophisticated, as the authors incorporate the feedback and suggestions from earlier versions.[1] With each version the U.S. current account situation also becomes more serious—and you can't help but think that the storyline is near its climax and some sort of resolution must occur soon. Will the U.S. current account deficit improve in conjunction with a gradual depreciation of the dollar and a period of strong growth—similar to the benign adjustment in the United States during the 1980s? Or will the story end with sharp exchange rate movements, slower growth, and higher inflation—as occurred during the more disruptive period in the 1970s?

My comments on Obstfeld and Rogoff are divided into three main sections. First, I discuss several key insights from the paper that deserve to be highlighted and that have important policy implications. Second, I briefly mention several issues that could have meaningful implications for the analysis but that are not addressed in the paper. Third and finally, I propose two reasons why the conclusions and key results in the paper may be too negative. The authors end the paper implying that the U.S. current account is likely to unwind in a scenario that Charles Dickens might have labeled as "the worst of times," but is there reason to believe that this story could instead end as "the best of times"?

Three Important Contributions of Obstfeld and Rogoff

Obstfeld and Rogoff develops a general equilibrium model to show how an unwinding of the U.S. current account deficit will affect currency movements. Then it performs simulations to assess the magnitude of these effects under different scenarios. The model is fairly straightforward, but

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1. Also see Obstfeld and Rogoff (2000, 2005).

yields very powerful results and is a useful framework to explore several policy implications. While the paper presents a number of insights, I will highlight three: the way in which current account adjustments affect exchange rates (in contrast to how exchange rates affect current account balances), the role of flexibility in product markets, and the role of different types of productivity growth.

One contribution of Obstfeld and Rogoff is that the framework used in the paper forces us to rethink causality and the relationship between trade balances and exchange rates. Most people discussing the subject of global imbalances begin by focusing on the different factors that will reduce the U.S. trade deficit (such as raising savings in the United States or a large dollar depreciation). Instead, Obstfeld and Rogoff start by simply assuming that the current account deficit is reduced and then analyze how this affects real and monetary variables, including the exchange rate. In other words, Obstfeld and Rogoff take the opposite approach from most analyses by asking how a reduction in the U.S. current account will affect the U.S. exchange rate, rather than how the U.S. exchange rate will affect the U.S. current account deficit.

This approach of focusing on the real exchange rate as an outcome, instead of a cause, of an adjustment in the U.S. current account deficit is particularly useful because it highlights the real adjustment that must take place in the U.S. economy when the current account deficit shrinks. The analysis shows that any reduction in the U.S. current account deficit will cause a substantial depreciation of the dollar. Many policymakers tend to focus on other cures for the U.S. current account deficit—such as raising U.S. national savings or structural reform in Europe. These policymakers generally believe that accomplishing these goals would reduce the need for a dollar depreciation. Although these goals are all worthwhile and will facilitate any adjustment, Obstfeld and Rogoff show that these adjustments will not, in and of themselves, be sufficient. Even if the United States increases national savings and Europe and Japan adopt structural reforms to raise productivity growth in nontradables, a dollar depreciation will still occur.

A second important contribution of Obstfeld and Rogoff is that it highlights the importance of flexibility in product markets to facilitate a smooth adjustment of global imbalances. The economic literature has a long history of exploring the importance of flexibility for economies to adjust to a variety of shocks—so the importance of flexibility is not surprising. Obstfeld and Rogoff's model, however, not only highlights the importance of flexibility to the adjustment process, but also provides a useful framework to assess the magnitude of these effects. For example, when Obstfeld and Rogoff drop their baseline assumption of full pass-through and instead assume that pass-through from exchange rates to prices is 50 percent, then the corresponding impact of reducing the U.S. current account deficit on exchange rates roughly doubles. In other words, focusing on the four scenarios that provide the baseline case in table 9C.1, the impact of reducing the U.S. current account deficit to zero would correspond to a 14 percent to 32 percent depreciation of the dollar under the case of full pass-through, but a 29 percent to 65 percent depreciation assuming 50 percent pass-through. Moreover, even an assumption of 50 percent pass-through may be too high. A study by authors at the Federal Reserve Board estimates that the pass-through of exchange rates to import prices in the United States was about 20 percent over short-time horizons in the past decade (Faust et al. 2005).

This conclusion that greater flexibility in product markets will reduce the exchange rate impact of an adjustment in global imbalances has important policy implications. Countries with more rigid product markets will face an important tradeoff. If they are concerned about the impact of a dollar depreciation on their exports and growth, one solution to minimize the impact is to reduce product market rigidities. Countries that are unable or unwilling to tackle reform will face a greater currency appreciation. Neither option is politically popular, but Obstfeld and Rogoff suggest that a choice must be made.

A third contribution of Obstfeld and Rogoff is that it clarifies exactly how productivity growth can help reduce global imbalances—and especially the role of the type of productivity growth. More specifically, the paper shows that stronger productivity growth in major non-U.S. economies, such as Europe and Japan, would not necessarily lead to a reduction in the U.S. current account deficit. In fact, higher productivity growth in the tradable sector in countries outside the United States could actually have the opposite effect and increase the U.S. current account deficit. Instead, it is only higher productivity growth in the non-tradable sector (outside of the United States) that would help reduce global imbalances. This is an important distinction—and one that is often overlooked.

This insight that the form of productivity growth can have important effects on global imbalances has important implications. For example, as Obstfeld and Rogoff point out, strong productivity growth in the U.S. non-tradable-goods sector since the middle of the 1990s may have been an important factor in explaining the widening of the U.S. current account deficit over this period. The authors write that they hope to explore this issue in a follow-up paper, and I encourage them to follow through on this issue. A closely related implication is that reducing global imbalances while simultaneously raising growth in non-U.S. economies is possible and feasible. Japan and most countries in Europe have not benefited from the rapid productivity growth in the nontradables sector experienced in the United States over the past decade, but they can learn and benefit from the U.S. experience. With appropriate policies, countries can not only reap similar gains as in the United States, but also even reap faster gains as they can simply adopt first-best practices that were only learned over time in the United States.

Other Issues to Explore

Although Obstfeld and Rogoff address a number of key aspects of any adjustment in the U.S. current account deficit, their modeling framework does not include several factors that could affect the adjustment process and the central results. In particular, the paper downplays the role of global financial markets—especially how different actors could respond to a rapid adjustment in the dollar. The paper simulates how a dollar depreciation affects asset market valuations and argues that the magnitude of these effects is second order. There are, however, a number of other ways in which financial markets, foreign actors, and investors could respond to the adjustment in the U.S. current account deficit and affect the depreciation of the dollar.

For example, if the dollar depreciated rapidly, it is likely that foreign central banks would loosen monetary policy to stimulate growth and stem the appreciations of their currencies. How would this affect the results? Similarly, at least 26 percent of net capital flows into the United States in 2004 were purchased by official institutions (largely central banks)—a market participant that may behave differently than profit-maximizing investors.[2] Will the way in which the U.S. current account deficit is financed (such as through portfolio inflows versus foreign direct investment versus government bond purchases) affect the adjustment process? Also, as Bernanke (2005) highlights, low interest rates in the United States reflect high savings (relative to investment) in the rest of the world. In the framework used in the paper, it is difficult to see how changes in savings and investment abroad will affect the results. If foreigners became alarmed about a dollar depreciation, they might increase private savings. How would this complicate the adjustment process?

A final issue that is not directly addressed in the paper is the possibility of nonlinearities or *breaks* in the simulated relationships. Although Obstfeld and Rogoff's model is not developed as a linear model, most of the effects discussed in the paper appear to be roughly linear. Although this result is reasonable for moderate movements in the key variables, large movements of key variables (such as the exchange rate) would likely generate substantially different relationships between these variables. For example, a sudden and rapid depreciation of the dollar could generate massive sales by market participants that had to cover losses—especially hedge funds

2. The source is Treasury International Capital (TIC) flow data. The actual value of purchases of U.S. assets by official institutions is likely larger than the reported figure as purchases by official institutions through private institutions are not classified as "official" purchases.

and other leveraged institutions. On the other hand, a sudden and rapid depreciation could also generate responses by other countries—such as interventions in exchange markets or changes in monetary policy (as discussed previously). These nonlinear responses are even more likely when evaluating the case of the United States, due to its large size and the magnitude of the required adjustment relative to the size of the global economy. If the dollar depreciated by 40 percent in a short amount of time—one of the scenarios considered in the paper—there would likely be shifts in some of the underlying parameters of the model. These potential nonlinearities may be difficult (if not impossible) to include in the model, but it would be helpful to have a discussion of how they might occur and how they would affect the central results.

To be fair, one of the strengths of Obstfeld and Rogoff is the simplicity in the model. Moreover, a number of other papers in this volume have focused on asset market effects of an adjustment to the U.S. current account deficit, while Obstfeld and Rogoff introduce a number of points not made in the other papers. Incorporating many of the points discussed above would undoubtedly complicate the model and estimation. Nonetheless, it would be useful for the authors to briefly discuss how each of these factors might affect the central results and implications of the paper.

Are the Conclusions Overstated?

When Obstfeld and Rogoff presented the earliest version of this paper, the U.S. current account deficit had just reached 3.7 percent of GDP in 1999. Many people thought their estimates of the forthcoming dollar depreciation were too large and unrealistic. Since then, the dollar has depreciated by 7 percent against a broad basket of currencies (according to the broad dollar index calculated by the Federal Reserve Board), but the U.S. current account deficit increased to 5.7 percent in 2004. U.S. net external debt levels have also increased sharply. The current version of the paper predicts an even greater depreciation of the dollar will occur when the U.S. current account deficit declines. Are these predictions overstated?

The top of table 9C.1 summarizes the estimates from Obstfeld and Rogoff's tables of the real dollar depreciation that would occur if the U.S. current account deficit shrank from 5 percent of GDP to zero under a variety of assumptions.[3] The right side of the table also includes the comparable estimates from Obstfeld and Rogoff's model under the more realistic assumption of 50 percent pass-through (instead of full pass-through). This summary shows that Obstfeld and Rogoff focus on scenarios in which the dollar falls between 12 percent and 35 percent in the case of full pass-

3. It focuses on the range of parameters used for the analyses throughout the paper, with $\theta = 1$ or 2 and $\eta = 2$ or 3.

Table 9C.1 **Real dollar depreciation under various assumptions**

	Full pass-through		50% pass-through	
	$\theta = 2, \eta = 3$	$\theta = 1, \eta = 2$	$\theta = 2, \eta = 3$	$\theta = 1, \eta = 2$
Base case from Obstfeld-Rogoff: Current account falls to 0				
Outputs constant	14.4	32.3	28.8	64.6
20% rise in U.S. tradables output	11.5	24.0	23.0	48.0
Allowing exchange rate to revalue NFA	13.3	27.3	26.6	54.6
Permanent rise in military spending	15.7	35.3	31.4	70.6
Range	11.5	35.3	23.0	70.6
Range if current account falls to:				
2.0% of GNP	6.9	21.2	13.8	42.4
2.5% of GNP	5.8	17.7	11.5	35.3
3.0% of GNP	4.6	14.1	9.2	28.2

through, or between 23 percent and 71 percent in the case of 50 percent pass-through (which may even be conservative).[4] These estimates of a large future depreciation of the dollar are bound to cause alarm.

A number of the parameters in Obstfeld and Rogoff are difficult to estimate precisely, and it is obviously possible to use different estimates of these parameters to attain larger or smaller estimates of the expected dollar depreciation. Obstfeld and Rogoff use reasonable estimates (to the best of my knowledge). The one key assumption that I believe is problematic, however, is that each result is based on the U.S. current account moving to balance. Although the U.S. current account deficit will need to fall in the future in order for U.S. net external debt levels to stabilize, there is no reason that the U.S. current account deficit needs to fall to 0 percent of GDP. Instead, sustained growth in the United States close to potential would allow the United States to have moderate current account deficits (albeit smaller than today) for an extended period of time.

More specifically, a simple back-of-the-envelope calculation suggests that the United States does not need to reduce its current account deficit to zero in order to have sustainable debt dynamics. Assume that several variables are defined, such that

N is the nominal value of U.S. net foreign liabilities.

Y is nominal GNP.

g is the percentage growth of nominal GNP.

C is the nominal U.S. current account deficit.

4. The smallest estimates are from the simulation assuming a 20 percent rise in home tradables output, with $\theta = 2$ and $\eta = 3$; the largest estimates are from the simulation assuming a permanent rise in military spending with $\theta = 1$ and $\eta = 2$.

$c = C/Y$ is the current account deficit as a percent of GDP.

$n = N/Y$ is the U.S. debt to GNP ratio.

Then U.S. external debt will stabilize if $ng = c$.[5] If $ng < c$, then the U.S. external debt to GNP ratio is rising, and vice versa. Using this simple framework, assume that the United States has real annual GNP growth of 3 percent and inflation of 2 percent so that nominal GNP growth is 5 percent. Then if the U.S. current account deficit fell to 2.5 percent of GNP, U.S. net foreign liabilities would stabilize at 50 percent of GNP—a ratio that appears to be manageable for developed economies. If the U.S. current account deficit fell to 2.0 percent of GNP, U.S. net foreign liabilities would stabilize at 40 percent of GNP. If the U.S. current account deficit fell to only 3 percent of GNP, U.S. net foreign liabilities would stabilize at 60 percent of GNP. Although it is difficult to know exactly what ratio of net foreign liabilities is safe, a ratio of 50 percent of GNP should be manageable for a developed economy such as the United States that borrows largely in its own currency.

Using the conservative estimate that U.S. net foreign liabilities stabilize at 50 percent of GNP implies that the U.S. current account deficit would only need to fall from 5.0 percent (the starting point of the simulations in the paper) to 2.5 percent of GNP—instead of to 0 percent of GNP. Assuming that the Obstfeld and Rogoff estimates are roughly linear, the estimated exchange rate depreciations would therefore be only half of the reported estimates. In other words, Obstfeld and Rogoff's simulations suggest that the dollar would only depreciate by 6 percent to 18 percent (instead of 12 percent to 35 percent) assuming full pass-through, or by 12 percent to 35 percent (instead of 23 percent to 71 percent) assuming 50 percent pass-through. Or, if U.S. net foreign liabilities stabilized at 40 percent of GNP, the dollar would only depreciate by 7 percent to 21 percent assuming full pass-through, or by 14 percent to 42 percent assuming 50 percent pass-through. These results are summarized at the bottom of table 9C.1, and although these results still imply a substantial depreciation of the dollar, the magnitude is less alarming.

Adding fuel to the fire, Obstfeld and Rogoff do not simply end with these predictions of a large dollar depreciation that would occur if the U.S. current account deficit moves to balance. Instead, the paper closes by speculating if the predicted depreciation will occur in a period similar to the mid-1970s or the 1980s. In the mid-1970s, the dollar depreciation occurred in conjunction with the breakup of Bretton Woods and a period of high inflation and lower real growth. In contrast, the dollar adjustment in the 1980s was fairly gradual and occurred during a period of fairly strong

5. This framework ignores changes in asset valuations due to capital gains and losses on existing holdings. This exercise is similar to that in Mussa (2005).

growth and moderate inflation. In the abstract, the paper states: "Whereas the dollar's decline may be benign as in the 1980s, we argue that the current conjuncture more closely parallels the 1970s, when the Bretton Woods system collapsed."

Although Obstfeld and Rogoff raise the important point that the unwinding of large current account deficits can be benign or disruptive, the short verbal discussion of the 1970s, 1980s, and current period does not make a strong case that the current episode more closely resembles the 1970s than the 1980s. Obstfeld and Rogoff just quickly cite a few reasons why the current situation may be closer to the 1970s: loose fiscal policy, soft monetary policy, open-ended security costs, twin deficits, and high energy prices. A closer look at the data, however, suggests that this quick comparison may be overstated.

Table 9C.2 examines the statistics mentioned by Obstfeld and Rogoff as well as other factors that will determine the impact of a current account adjustment on the U.S. economy. It focuses on the year in which the current account deficit reached its peak in each decade. In the 1970s, the peak current account deficit was only 0.7 percent of GDP (in 1977)—much smaller than the peak 1980s deficit of 3.4 percent of GDP (in 1987) and 5.7 percent of GDP in 2004. Moreover, the U.S. budget deficit (as a percent of GDP) in 1977 was only about half the size in 1987 and 2004. Although inflation picked up slightly in 2004, it is still well below the level in 1977 and closer to the level in 1987. Military spending as a percent of GDP is actually lower today than in 1977 and 1987. The strongest similarity between 2004 and 1977 is the sharp rise in oil prices. Moreover, several of the variables listed at the bottom of table 9C.2 (and not discussed in Obstfeld and Rogoff) in-

Table 9C.2 **Historical comparison of the U.S. economy during peak current account deficits (%)**

	Year of peak current account deficit		
Variable	1977	1987	2004
Current account balance (% of GDP)	–0.7	–3.4	–5.7
Fiscal balance (% of GDP)[a]	–2.2	–4.3	–4.3
CPI inflation	6.5	3.6	2.7
Military spending (% of GDP)[b]	4.7	5.8	3.7
Real change in oil prices[c]	62	–25	37
Total trade (% of GDP)[d]	16.8	18.4	25.2
Global real GDP growth	4.4	4.0	5.1

[a]Consolidated government balance on receipts and expenditures.

[b]Federal government outlays (on-budget and off-budget) for national defense.

[c]Cumulative real change in oil prices over the past three-years. Spot oil price for West Texas Intermediate, deflated by the CPI-U Energy.

[d]Current value of imports and exports divided by current GDP.

dicate that any adjustment of the U.S. current account deficit could be smoother—instead of more disruptive—than in the past, such as the higher share of trade to GDP and the stronger rate of global GDP growth.

Therefore, although the current episode does have some similarities with the 1970s—especially the increase in oil prices—it has even more similarities with the 1980s. The current episode also has unique characteristics not previously experienced in the United States, such as the size of the current account deficit and U.S. net foreign liabilities. Therefore, although it is useful to examine history and attempt to draw lessons from the past, this brief discussion suggesting that an adjustment of today's current account deficit will be closer to the disruptive 1970s than the benign 1980s is not very illuminating. It is possible that the authors have examined this question more closely elsewhere, but any such analysis is lacking in this paper. The short statistical summary in table 9C.2 suggests a more thorough case should be developed in order to claim that "the current conjuncture more closely parallels the 1970s, when the Bretton Woods system collapsed."

Because the rest of Obstfeld and Rogoff is a carefully written, precise paper, this final section of the paper is not a worthy ending of an otherwise insightful paper. Although Dickens and the Victorian authors that used serial publishing may have believed that crises and catastrophes were necessary to keep the public reading, Obstfeld and Rogoff do not need to follow this approach. This paper is perceptive and informative, and even if there is not a disruptive ending to the U.S. current account deficit, we will keep reading the various installments and updates of this analysis.

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